

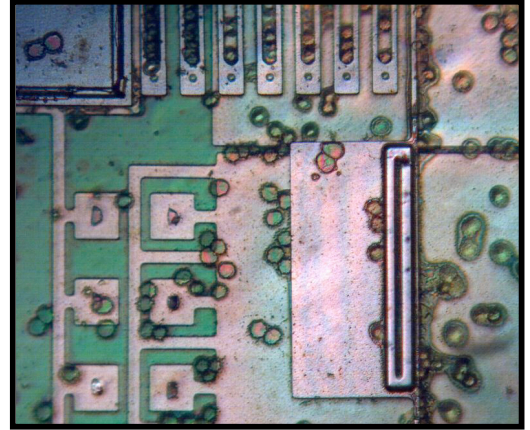
MEMS Seminar

Date: Friday June 18, 2004

Time: 11:00 AM

Room: SED Conference Room 225/A326

LOCOMOTION AND CONTROL SYSTEMS FOR MEMS MOBILE ROBOTS



Speaker: Craig McGray, Dartmouth College.

This seminar will present mechanisms for powering and controlling mobile thin-film micro-robots. These mechanisms are based on the use of untethered MEMS actuators, whose dimensions are less than 100 μm on a side and less than 2 μm thick. The actuators receive power from an ambient electric field applied from an underlying silicon substrate, and can operate in any planar position and orientation, unrestrained by wires or rails. Steering is based on the ability to mechanically decode a time-variant electric field in order to produce and store mechanical state information within the MEMS device. This state information affects the device's response to subsequent changes in the electric field so that qualitatively different behaviors can result from the same applied field. In this way, the device can be programmed at an elementary level without having any transistors on board. This seminar will discuss the design, fabrication, and testing of these devices, and will present algorithms for generating the control signal required to produce each desired device behavior.

Note: Craig will spend the last 10 minutes speaking about his NRC postdoctoral research proposal on "MEMS-Enabled High-Throughput Materials Characterization."

Contact: Michael Gaitan, x2070